

PATENT COOPERATION TREATY

PCT



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference RPH.P51878WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/00125	International filing date (<i>day/month/year</i>) 15.01.2003	Priority date (<i>day/month/year</i>) 19.01.2002
International Patent Classification (IPC) or both national classification and IPC G07C9/00		
Applicant QUEEN MARY AND WESTFIELD COLLEGE et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 08.07.2003	Date of completion of this report 14.05.2004
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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/00125

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1, 3-15 as originally filed
2, 2a filed with telefax on 20.04.2004

Claims, Numbers

1-16 filed with telefax on 20.04.2004

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
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International application No. PCT/GB 03/00125

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

see separate sheet

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-16
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability ; citations and explanations supporting such statement.

1. Reference is made to the following documents :

D1 : US-A-6 208 756 (PIONEER ELECTRONIC CORP) 27 March 2001

D2 : US-A-4 805 222 (INT BIOACCESS SYSTEMS CORP) 14 Februar 1989

D3 : EP-A-0 889 433 (MITSUI HIGH TEC) 7 January 1999

D4 : FR-A-2 684 469 (THOMSON CSF) 4 June 1993

D5 : US-A-5 101 437 (ECOLE POLYTECHNIQUE MONTREAL) 31 march 1992

This last document was not cited in the international search report. A copy of which is appended hereto.

2. Amendments.

The amendments filed with the telefax dated 20.04.2004 introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 34(2)(b) PCT. The amendments concerned are the following, for which no basis can be found in the application as filed.

-claim 1, c), claim 15, claim 16 : "verification criteria" ;

-claim 13 : "...according to the fitness of such features to discriminate the user's signature..."

In the following, the examination report has been written as if the amendment were filed with such a wording :

- "selection criteria" instead of "verification criteria"

- no reference to "discriminate the user's signature".

3. Independent claim 1.

The document D5 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document) an authentication system for authenticating a user's signature as electronically inputted into the system by a manual input device (analogue-to-digital tablet 2), providing an output indicative of its location with respect to time ($D_x(t)$, $D_y(t)$) when manipulated by the user, the system comprising :

[column 1, line 45 - column 3, line 39]

-extraction means (electrical transducer) for extracting angle and distance data (A_{x0} - A_{x9} , A_{y0} - A_{y9} , $D_x(t)$, $D_y(t)$) relating different parts of the user's signature inputted into the system by the manual input device ;

[column 7, line 6 - column 8, line 56 ; column 12, lines 1-9 ; figure 5]

-registration means (processing unit 4, disc unit 10) for setting up a reference data file compiled from angle and distance data relating to a sample of the user's signature inputted into the system by the user by means of the manual device during a registration phase ;

[column 6, lines 63-68]

-comparison means (processing unit 4) for comparing the angle and distance data extracted by the extraction means from the user's signature inputted into the system during an authentication phase to reference distance data held in the reference data file, according to defined selection criteria ;

[column 9, lines 30-45 ; column 12, line 64 - column 13, line 15]

-verification means (processing unit 4, monitor 8) for providing an output indicative of an appropriate match between the inputted signature to be authenticated and the reference data in dependence on the result of the comparison.

[figures 1, 1A & 1B]

The subject-matter of claim 1 differs from that disclosure in the reference signature comprising data coming from a plurality of samples of the user's signature instead of coming from a single sample.

The problem to be solved by the present invention may therefore be regarded as providing a reliable data file representing a reference signature of the user. Such a problem is identified in the process of document D5 (see column 9, lines 63-65) referring with the variation in the signature of a person from time to time. Furthermore, in another step of the process, dealing with threshold used to discriminate an inputted

signature (see column 16, lines 43-58) the use of several reference signatures is explicitly disclosed.

The skilled person would therefore use several samples of signatures in order to build a reliable data file representing the reference signature, in the same way that discrimination thresholds are based on several sample of signatures.

Moreover, this feature is also described in document D4 (see page 2, lines 13-21) as providing the same advantages as in the present application.

Therefore, the subject-matter of claim 1 does not involving an inventive step in the sense of Article 33(3) PCT.

4. Dependent claims.

Dependent claims 2-16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being as follows.

-The additional features of dependent claims 2-7 do not go further than usual algebraic calculations based on cartesian geometry from the extracted coordinate data $D_x(t)$, $D_y(t)$ (see D5, column 7, line 49 - column 8, line 55 ; figures 6-15).

-The additional features of dependent claims 8-11 relating to the input of a password using a keyboard are disclosed in document D2.

(see column 6, line 36 - column 8, line 42 ; column 10, line 35 - column 11, line 59 ; figures 4, 5, 6-10)

These features do not lead to a combination of features with those of any claim to which they refer but consist in a juxtaposition of features without a functional interaction or a combined technical effect.

-The additional feature of dependent claim 12 is disclosed in document D4 (see page 13, lines 16-27).

-The additional feature of dependent claims 13 and 14 belong to the usual knowledge

of the skill person in computational optimization, see for instance : David E. Goldberg, "Genetic Algorithms in Search, Optimization, and Machine Learning" Addison-Wesley Ed., 1989 (ISBN: 0201157675).

-The additional feature of dependent claims 15, 16 are disclosed in document D5.
(see column 20, line 59 - column 21 , line 67)

Re Item VII

Certain defects in the international application

5. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D5 is not mentioned in the description, nor is this document identified therein.

Re Item VIII

Certain observations in the international application

6. The feature d) of claim 1 : "verification means for providing an output indicative of an appropriate match between the inputted signature and the reference signature in dependence on the result of the comparison...", is not referred to in the description apart from the introduction part which only recites the wording of the claims.

Claim 1 is therefore not supported by the description as required by Article 6 PCT.